Remarks/Arguments:

Claims 1-27 are pending in the application and are rejected. Claims 1-27 are not rejected based on prior art.

The present invention relates to a radio communication apparatus that transmits information over a plurality of antennas. Specifically, the system selects transmission vectors to control receiving power and phase of a received signal.

On page 2, the Official Action objects to claims 1 and 11-13 for informalities. As for the objections to claims 1 and 13, Applicants have amended these claims based on the suggestion of the Examiner. As for claims 11 and 12, Applicants have removed the feature of "*the plural sets of transmitting symbol vectors being controlling any one of receiving power and phase of the radio station*" from independent claim 1. Thus, dependent claims 11 and 12 are now proper dependent claims. Withdrawal of the objections are respectfully requested.

On page 4, the Official Action rejects claims 13-22 under 35 U.S.C. 112, second paragraph, as being indefinite. Thus, Applicants have amended claims 13 and 18 to replace "*an antenna for transmitting carrier a carrier modulation signal*" with "*an antenna for transmitting a carrier modulation signal.*" Applicants have also amended claims 13 and 18 to replace "*the apparatus comprising*" with "*the receiving apparatus comprising.*" Withdrawal of the 112, second paragraph rejections is respectfully requested.

On page 3, the Official Action rejects claims 1-12 and 23-27 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The Examiner specifically points to three different features which are believed to be unsupported in the specification.

In the first example, as recited on page 3, lines 8-10 of the Official Action, the Examiner believes that it is not clear why the matrix V is chosen to be the transmitting symbol matrix. As shown on page 24, line 22 - page 25, line 25 of the specification, the transmitting symbol matrix V is part of a singular value decomposition computation as shown in equation (2). In equation (2) U is an mxn unitary matrix, Λ is an mxn matrix and V is an nxn matrix. It is further shown in equation (4) that the

receiving symbol y is controlled by the multiplication of the channel matrix h and the transmitting symbol matrix V. Therefore, the receiving symbol y is represented as the sum of the singular value s and the noise n if V is chosen for the transmitting symbol vector. This means that the receiving symbol h is controlled to be the singular value s of channel matrix h. Thus, V is chosen as the transmitting symbol vector calculated from the channel matrix h, for controlling the value of the receiving symbol y. Therefore, this is the reason why matrix V out of the three matrices is chosen as the transmitting symbol matrix. Withdrawal of the 112, first paragraph rejection is respectfully requested.

In the second example as recited on page 3 in lines 10-13 of the Official Action, the Examiner states that the specification does not disclose how the transmitting symbol vectors are calculated if h is not a one row by two column matrix. Applicants, however, respectfully disagree with the Examiner. One of ordinary skill in the art would understand that the dimensions of the h matrix are scaled depending on the size of the system. For example, the h matrix dimensions would increase with an increase in the number of antennas. Thus, as the dimensions of the h matrix increase or decrease, it is readily understood by those skilled in the art that the other matrices would also have to increase or decrease accordingly in order for the mathematical computations to be computed correctly. An example of a different size h matrix is disclosed in Applicants' page 27, lines 4-13 where h is a one row by three column channel matrix. Withdrawal of the 112, first paragraph rejection is respectfully requested.

In the third example as stated on page 3, line 19 and 20 of the Official Action, the Examiner states that the plural sets of transmitting symbols calculated from the known symbol is not described in the specification. Applicants, however, respectfully disagree. The plural sets of transmitting vectors are computed based on a channel estimation. This channel estimation h is computed by utilizing a known symbol (known to both the transmitter and receiver). By computing the channel estimation h from the known symbols in advance, the transmitting symbols are then calculated. This feature is supported in Applicants' specification on page 28, line 12 - page 29, line 20 ("*First, a known symbol 401, which is generated by the known symbol generation means 400 in the receiving station 202 ... this single carrier modulation signal 406a that is modulated from the known symbol 401 and transmitted ... due to*

this, there are generated receiving symbols 306 and 307, which denote the estimate values of complex propagation channels between the receiving station antenna ... those receiving symbols 306 and 307 are processed in the transmitting symbol calculation means 308, calculating a transmitting symbol vector made of two elements corresponding to the transmitting station antenna ... there is generated a reference table 309 configured by the plurality of sets of those symbol vectors ... calculate the propagation parameters therebetween with the respective known symbols in advance"). Thus, the plural sets of transmitting symbols are computed by the channel estimation utilizing the known symbol. Withdrawal of the 112, first paragraph rejection is respectfully requested.

Applicants' claims have not been rejected based upon prior art. Thus, in view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,

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